

REJECTION OF CLAIMS UNDER 35 USC §102

In the Office Action, the Examiner rejected claims 1, 2, 5, 6, 7, 16, and 26 under 35 USC §102 as being anticipated by Nilsson, U.S. Patent No. 6,289,446, ('Nilsson' hereinafter). This rejection is respectfully traversed.

Nilsson discloses a special call instruction, which is inserted by a compiler. See col. 12, lines 33-38. The exception handler, called from code emitted by the compiler when an exception is thrown, manages unwinding of the stack. See col. 11, lines 1-8. Specifically, the exception handler of Nilsson is able to locate context tables for each function popped from the stack during unwinding more quickly because there is no need to search the context records for a match. Rather, the in-code context data of the JSRC instruction is used to go directly to the correct context record. See col. 7, lines 23-30. The context call instruction (e.g., JSRC) is followed by in-code context data used in execution of an exception manager responsive to the context call instruction. See col. 7, lines 30-54. The in-code context data comprises at least a subset of the unwind information. See cols. 7, line 67 – col. 8, line 1.

It is important to note that the JSRC instruction stands for “jump to subroutine with context data,” which includes unwind information, as set forth above. See col. 7, lines 1-5. This special function call instruction is associated with a data field for carrying in-code context data at a fixed point relative to the perceived return address for the function call. The data field is large enough to hold information regarding the layout of function arguments, local data and information necessary for unwinding the function in processing synchronous or asynchronous exception information. Alternatively, the data field is large enough to hold information necessary for retrieving the location of information regarding the layout of function arguments, local data and information necessary for unwinding the function. See col. 8, lines 46-67.

Through the claimed invention, both a stack unwind assembler directive and sub-directive are generated by a compiler. In this manner, human readable indicators are provided in an assembly file to indicate the status of function data during stack unwinding. In addition, the stack unwind assembly directive (e.g., unwindinfo) is not a “jump” (e.g., jump to sub-routine) instruction. In no manner does the stack unwind assembly directive specify a function to be performed during stack unwinding, as does the JSRC instruction of Nilsson, which performs a jump to a subroutine with context data including unwind information. Rather, the stack unwind assembly directive is merely used to indicate to an

assembler that ~~“one or more at least one encoded data section sections~~ containing information to be used during stack unwinding is to be generated from the ~~one or more at least one~~ associated stack unwind sub directive.” In addition, “each stack unwind assembler directive is a human readable indicator indicating to the assembler that associated sub directives are related to stack unwinding.” In contrast, a “jump to subroutine” instruction is not an indicator, nor is it specific to stack unwinding. Accordingly, Applicant respectfully submits that the claims are patentable over Nilsson.

REJECTION OF CLAIMS UNDER 35 USC §103

In the Office Action, the Examiner rejected claims 3, 4, 8, 9, 10, and 27 under 35 USC §103 as being unpatentable over Nilsson in view of Charles et al., U.S. Patent No. 6,314,564, (‘Charles’ hereinafter). This rejection is respectfully traversed.

Charles discloses the use of PUSH, POP, and EVALUATE operations in postfix notation (“reverse Polish notation”) to resolve arbitrarily complex expressions at link-time. In contrast, Nilsson is related to exception handling using a specific call instruction for use in stack unwinding. As such, there fails to be a teaching to combine the postfix notation of Charles with a call instruction for an exception handler as disclosed in Nilsson.

It is also important to note that the use of reverse Polish notation is not easily readable and understandable by a human. As such, Charles teaches away from the claimed invention. Moreover, Charles discloses the use of a single instruction (e.g., PUSH) rather than two assembler directives, as claimed. Even if Charles and Nilsson were combined, the result would be the use of a JSRC (jump to sub-routine) instruction with an instruction of Charles such as PUSH, POP or EVALUATE. As such, the combination of the cited references would be inoperable for the intended purpose (e.g., stack unwinding). Accordingly, Applicant respectfully submits that claims 3, 4, 8, 9, 10, and 27 are patentable over the cited references.

In the Office Action, the Examiner rejected claims 11, 13, 14, 15, 17, 18, 19, 20, and 22 under 35 USC §103 as being unpatentable over Nilsson in view of Coutant, U.S. Patent No. 6, 293,712, (‘Coutant’ hereinafter). This rejection is respectfully traversed.


Coutant discloses a method and apparatus for constructing a stack unwind data structure. See title. Specifically, Coutant discloses the construction of a compact stack unwind data structure. See Abstract. Although Coutant discloses the general stack

unwinding process, Coutant fails to cure the deficiencies of Nilsson. Table 1 of Coutant further discloses record types, which are examples of the descriptor records. In other words, Coutant merely discloses construction of specific data structures in the form of descriptor records. In no manner does Coutant disclose or suggest the generation of directives in the manner claimed for use by an assembler. Accordingly, Applicant respectfully submits that claims 11, 13, 14, 15, 17, 18, 19, 20, and 22 are patentable over the cited references.

The dependent claims depend from one of the independent claims and are therefore patentable for at least the same reasons. However, the dependent claims recite additional limitations that further distinguish them from the cited references. Thus, it is submitted that the dependent claims are also patentable for at least the same reasons. The additional limitations recited in the independent claims or the dependent claims are not further discussed as the above discussed limitations are clearly sufficient to distinguish the claimed invention from the cited references. Thus, it is respectfully requested that the Examiner withdraw the rejection of the claims under 35 USC §102 and 35 USC §103.

Reconsideration of the application and an early Notice of Allowance are earnestly solicited. If there are any issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number listed below.

Applicants hereby petition for an extension of time which may be required to maintain the pendency of this case, and any required fee for such extension or any further fee required in connection with the filing of this Amendment is to be charged to Deposit Account No. 50-0388 (Order No. SUN1P710).

Respectfully submitted,
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